

Wallkill Wellfield Timeline

* Austin Glen Series sandstone and shale (fractured bedrock) is primary aquifer 25 to 100 ft below glacial till. Bedrock is covered with low permeability overburden. Groundwater in shale under a pressure that causes the gw to rise to overburden layer. Hydraulic connection between overburden to fractured bedrock – what is the transport mechanism from overburden to fractured bedrock?

Overburden wells: MW-1, -2, -3, -4, 5, -6, -7, -8, -9, -10, -11, -12, -13, -16, -19

Bedrock wells: MW-202, -203, -204, -207, -209, -211, -219, -220, W-30

*MW-14 – deep MW destroyed in 2008

Wells outside of site boundary (need permission to sample): MW-1, -2, -4, -7, -9, -10, -12, -13, -19, -202, -204, -207, -209, -219, W-30

Well sampling: 1992, 2000, 2003, 2005

1958-General Switch Building built-area adjacent to parking lot used for disposing of scrap metal and industrial waste generated by the plant

1963-Plant enlarged to present-day size and fill with old scrap metal used when parking lot expanded.

Oct 17, 1983- Investigations on Wallkill property begin when PCE and TCE identified in groundwater samples collected from adjoining and surrounding properties-Specifically, high contamination found in Parella (W-30)

1983-1984 – Over 300 groundwater samples tested and 20 wells on Highland and Watkins ave with detectable concentrations of tetrachloroethylene

Nov 16, 1983-EPA initiated removal action under CERCLIS and ordered General Switch to provide bottled water to residents with contamination >5ppb –Parella well (W-30) pumped. Temporary potable water line constructed above ground to supply affected residents. Residents supplied with municipal water (during residential pumping groundwater flowed northwest...natural gradient is south-southwest)

Dec 1983-NYSDEC sampled soil from 0-2.5 ft just south of plant bldg.

Dec. 23, 1989 – Consent decree between General Switch and EPA whereby PRP agreed to:

- 1- excavate PERC contaminated soil from hot spots & treat soil on-site
- 2- Pump & Treat GW via air stripper until aquifer = MCLs for PERC
- 3- hook up any affected well users to alternate system.

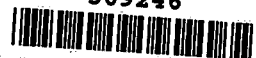
March 1984-Second round of soil sampling within 100ft radius of building. Most contaminated sample found on northwest side of plant.

1984-1986-Three hotspots identified within a distance of 200 ft from Parella well (-*3rd hotspot mentioned in consent decree, but not other documents)

-1984-1985- MW1-MW8 installed as shallow overburden wells

-MW-9-MW-11 installed later to top of bedrock ~10-15 feet below grade

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-MW-16-MW-18 installed between 15 and 23 ft below grade at base of overburden above hot spots TP-6, TP-A, TP-D.

July-August 1992 -Four deep MWs installed adjacent to existing shallow wells (MW-2, -3, -4, -7). Wells were designated MW-202, -203, -204, -207. Installed ~100 ft below grade.

March 29, 1993 – Characterization Report by Jacobs and Shakti. PCE and TCE identified on-site (ESI not involved)

Feb. 18, 1994-Site Characterization Report submitted

1995 – Lubricant Packaging Site (across street) listed as NYSDEC Class 2 site in registry

1997 – ESI began providing environmental services to property owner. Site –specific action level for PCE in soil set at 12 ppm

Sept – Oct 1998 – Contaminated soil excavated during site remedial activities

April 1999 and September 1999 – Soil removal in northern hot spot

April 27, 2001 – ESI prepared Interim Summary Data Report of Groundwater Sampling

Early 2005 – Bedrock wells installed

2005 – In bedrock aquifer – highest concentration found in upgradient Parella well (W-30) -130,000ppb, an indication of free product

2005-Additional wells constructed (MW-19, -209, -211, -219, -220)

July 15-28, 2005 – packer testing conducted

October 27, 2005 – Correspondence from Kulow (NY Health) to Olivo – four indoor and 1 outdoor air sample proposed for collection

2006-Subslab gas sampling at residence 334; crawl space at 319, 327

January 20, 2006 – EPA approves *Indoor Air Monitoring Plan*

April 2006 – 5 pumping tests conducted

September 8, 2006 – SOW submitted – COCs identified: high TCE present in subslab vapors beneath General Switch bldg, moderate levels of PCE found in subslab vapors/crawlspace

November 15, 2006 – Comments submitted on IAWR and SOW from August 2006

Nov 2006 – March 2007 – 18 sub-slab soil borings extended throughout on-site structure –SB-8 – 460 ppm

2007- Subslab gas sampling at residence 313; crawl space at 319, 325, 327

January 2007 – no free product observed in W-30

February 21, 2007 – EPA approves revised *Interim Report – Subslab Soil Sampling* (2 weeks prior, not approved)

-subslab collected from homes on both sides of Highland Ave – 2 homes declined

-Correspondence from Olivo to Ciminello – *Work Plan for Ground-water Pump Test and Product Removal (W-30)* not approved

March 24, 2007 – Correspondence from Olivo to Ciminello – *Well Installation and Remedial Selection Report (nov 2006)* not approved, with comments. (bedrock core description/lithology logs too general)

June 4, 2007 – Correspondence from Olivo to Ciminello (ecosystems) – *Work Plan for Ground-water Pump Test and Product Removal (W-30)* approved.

June 21, 2007 – Correspondence btw Metz and Olivo mentioning possibility of product intentionally poured directly into Parella well (W30)

October 2007 – *Revised Well installation and Remedial Selection Report* submitted

March 2008 - Air Quality Investigation Report (Report) submitted to the USEPA

August 2008 - Draft Remedial Action Work Plan

November 2010 - Revised Draft Remedial Action Work Plan

* USEPA has indicated an interest in another round of air tests, to be completed during the next heating season (November 2010 to March 2011).

January 2011 - Draft Remedial Action Work Plan

*Summary of pump and treat: A cutoff trench will be installed south of overburden monitoring well MW-5 (150 ft in length with 100 of those feet parallel to building). Trench is a layer of gravel that terminates in a sump. Allows collection of and pumping of water from overburden (see figure). The pump will be placed in MW-209 (bedrock well) and piped to the cutoff trench at 3-4 gpm extraction rate. Treatment system, air stripping and carbon adsorption, will be located north of the trench. Treated water from trench south of MW-5 and from MW-209 will be pumped at 10 gpm to an on-site subsurface discharge gallery that is designed to allow treated groundwater to seep into subsurface in controlled manner. All released will meet NYSDEC groundwater discharge standards.

January 2011 – ESI submitted air monitoring summary report – awaiting approval from EPA that vapor intrusion studies are complete.

April 2011-another draft RAWP??? Will this include an additional pump at MW-9 since -209 and -9 are assumed to be hydraulically connected?

Approved Reports:

2000 – *Interim Groundwater Remediation Workplan*

June 8, 2004 – *Work plan for Installation of Additional Monitoring Wells*

January 20, 2006 – EPA approves *Indoor Air Monitoring Plan*

February 21, 2007 –revised *Interim Report – Subslab Soil Sampling*

June 4, 2007 – *Work Plan for Ground-water Pump Test and Product Removal (W-30)*

Submitted reports (approvals unknown):

April 2001 – Groundwater Report

June 2005 – Draft Interim Summary Data Report of Groundwater Sampling

May 2007 – Summary Report of Subsurface Investigation

August 2007 – Draft Remedial Work Plan for Subslab Soil Contamination

October 2007 – Draft Well Installation and Remedial Selection Report (WIRSR)

August 2008-Draft Remedial Action Work Plan

November 2010- Draft Remedial Action Work Plan

January 2011- Draft Remedial Action Work Plan – awaiting approval